Rheumatology



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Rheumatology

Rheumatoid Arthritis



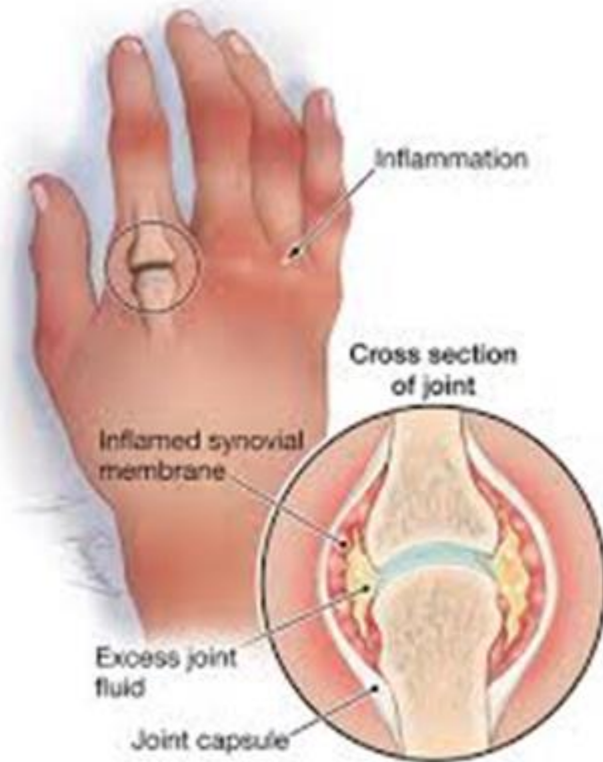
تحذير هام

هذا الفيديو و جميع الرسوم التوضيحية المتاحة فى هذا الموقع هم تحت حماية قانون الملكية الفكرية

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Definition

Rheumatoid Arthritis RA is a chronic inflammatory disorder affecting mainly the small joints of the hand.

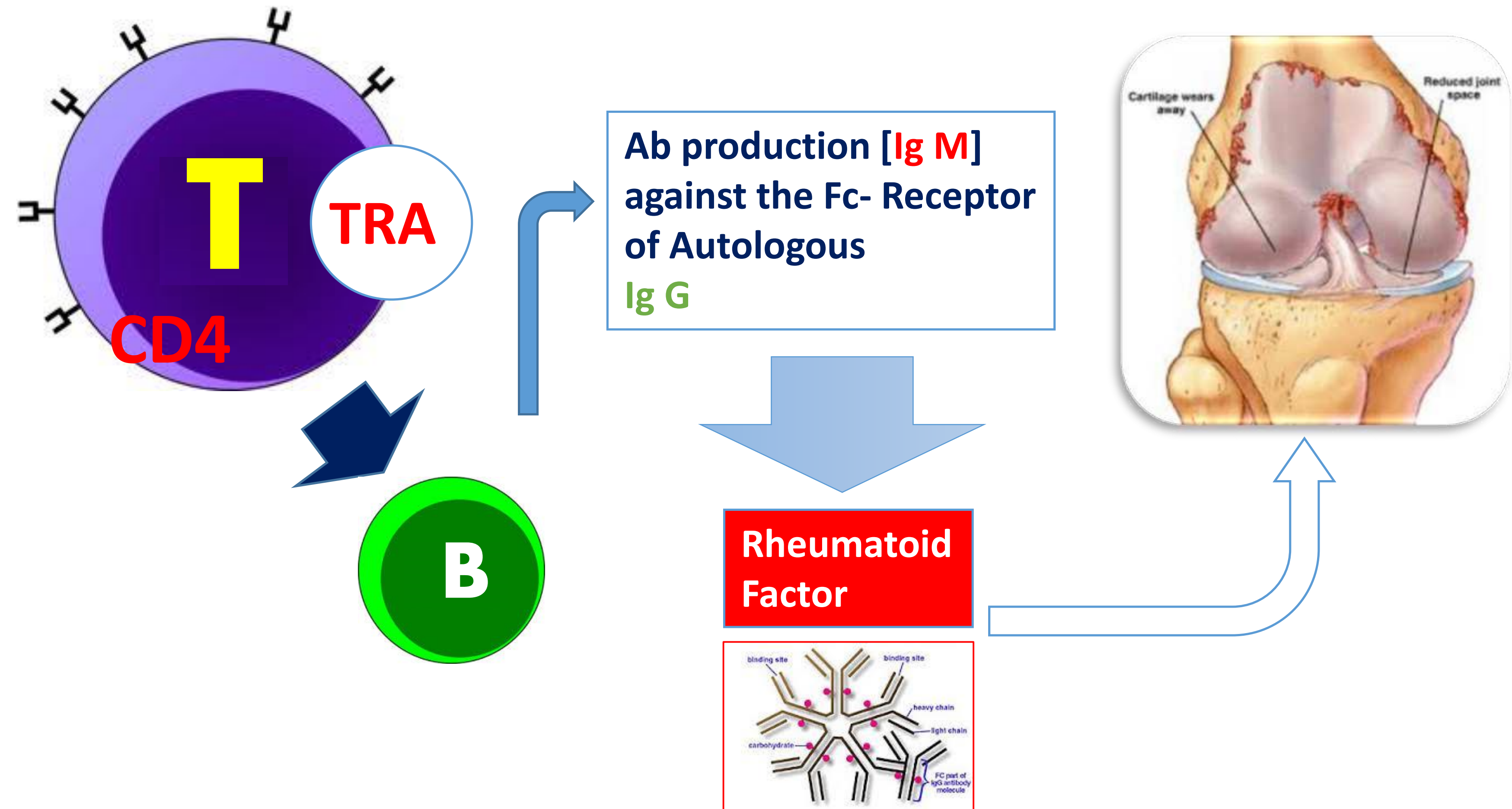


Aetiology

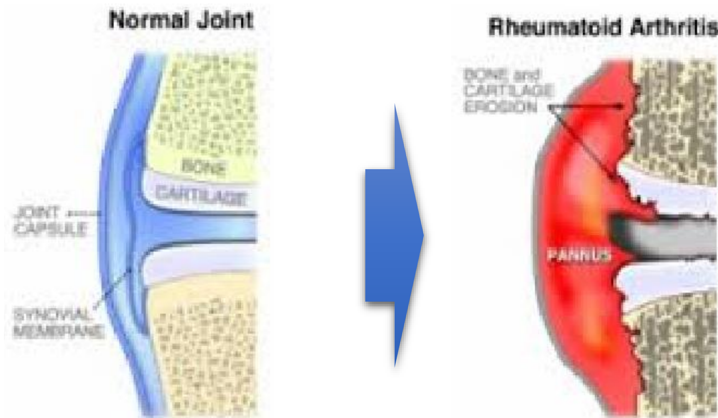
?! Unknown

Possibly EBV may bind to TCR on T Cells and triggers autoimmunity against antigens.

Mechanism


T
TRA
CD4
Ab production [Ig M] against the Fc- Receptor of Autologous Ig G
B
Rheumatoid Factor
binding site
binding site
heavy chain
light chain
carbohydrate
FC part of IgG antibody molecule
Cartilage wears away
Reduced joint space

Pathology



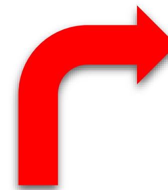


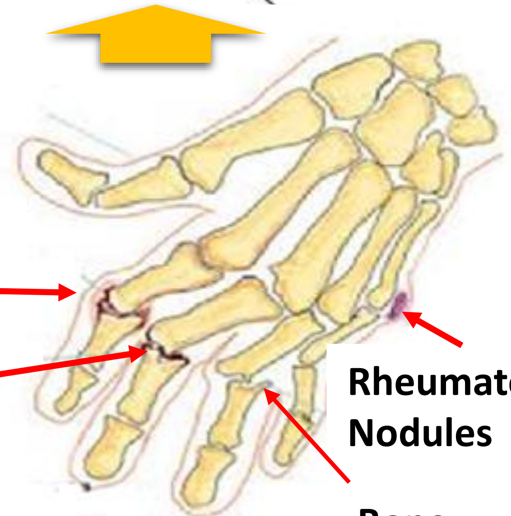
Normal

Rheumatoid Arthritis

Boutonniere deformity







Swollen joint capsule

Pannus formation

Rheumatoid Nodules

Bone erosions

Clinical Picture

Weakness
Easy *bruising*
Anorexia
Weight Loss

Atrophy of the Exocrine glands which may cause ulcers in eye-mouth-Vagina

Scleritis ….damage of the eye

Pleurisy and pleural effusion- IPF

Pericarditis- Pericardial effusion- AR

CTS

Pigmentation
easy bruising

Splenomegaly

Subcutaneous nodules

GLA

Myositis

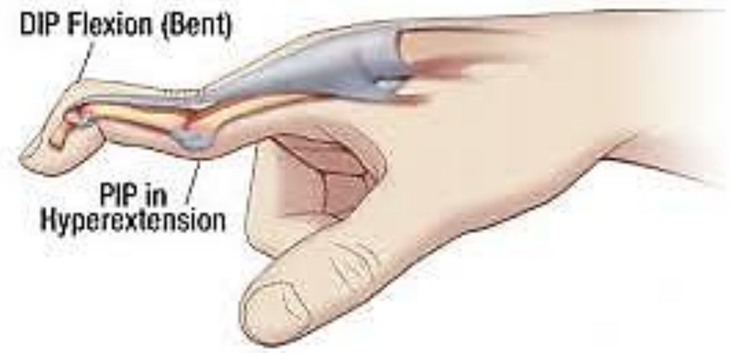
Rarely:
PN
TTS

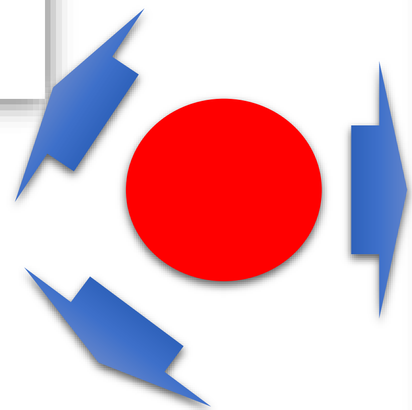
PIPJ

MPJ

Wrist

Bilateral Swelling of Both Hands


Swan Neck Deformity
DIP Flexion (Bent)
PIP in
Hyperextension




Rheumatoid arthritis
(late stage)
Boutonniere
deformity
of thumb
Ulnar deviation of
metacarpophalangeal
joints
Swan-neck deformity
of fingers


Ulnar
drift

Special Investigations

Positive Rheumatoid Factor

X Ray: Juxta articular osteoporosis





Anemia (NN)

↑ **ESR**

Ig G & Ig M

Treatment (1)



NSAI



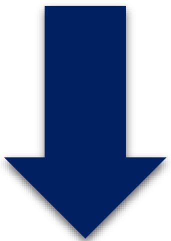
Methotrexate

NEVER give Sulpha with Methotrexate as both are Folate Inhibitors… Severe BM Suppression



Gold

4 **Chloroquine**



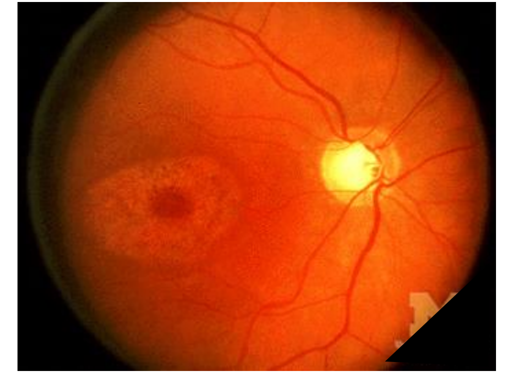
If Acute Exacerbation or Extra articular Manifestations

5 **Corticosteroids**

Treatment (2)

NSAI: GIT bleeding……..▶ Add H_2 Blockers or Use Cox 2 Inhibitors

---



Chloroquine: May cause Pigmented Retinitis in the Eye……▶
Repeated Eye Examination is mandatory.

Methotrexate: Use a small dose 10 mg/week

Gold: Can cause BM suppression and Nephropathy……▶
Do Blood Count *AND* Monitor Urine Proteins

Rheumatology

Systemic Lupus Erythromatosis



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Definition

An inflammatory autoimmune disorder that affects Multiple Organs and body systems.

Aetiology

?! Unknown

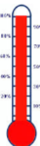
However, some etiological factors may <u>trigger</u> or autoimmune response to a variety of tissue components. These factors include:

1. Sex Hormones
2. UVR
3. Drugs (INH-Hydralazine-Procainamide).



<u>Note</u>: Drug induced lupus is associated with Anti-Histone Antibodies

Clinical Picture



Prolonged fever



Neurological and Psychiatric Manifestations

Alopecia

Skin Pigmentation in the Butterfly area

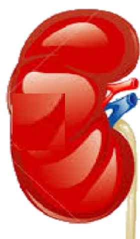


Pleurisy
Pleural effusion
IPF

GLA



Pericarditis
Myocarditis: HF
Endocarditis



AGN
Nephrotic Syndrome
CGN

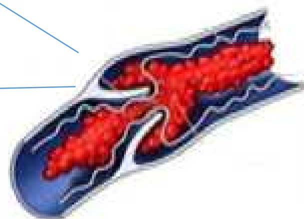


Splenomegaly



Arthralgia

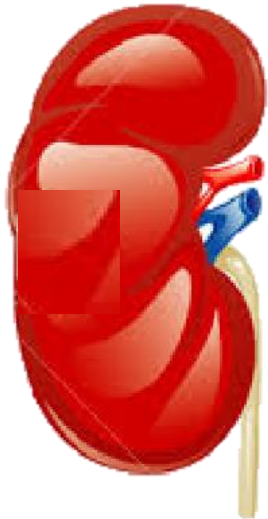
Vasculitis

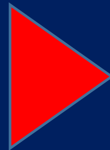


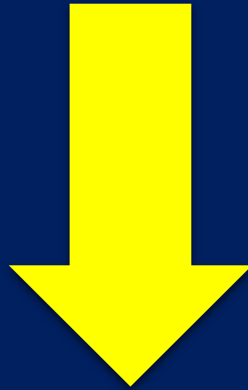
Hypercoagulability due to Lupus Anticoagulant (Anticardiolipin Abs)

Special Investigations

Anti nuclear Abs Sensitive but NOT Specific	**Anti Double Stranded DNA**	**Anti Sm Abs The Most Specific for SLE but found only in 30% of the cases**	**+ve VDRL +ve Coom test PCP-KFT ↑ PTT**

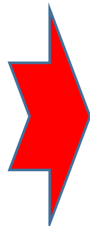


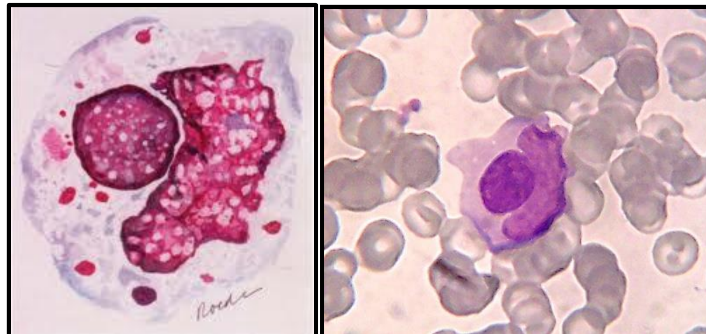




Serum Compliment levels

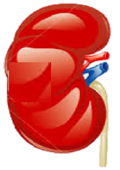
LE Cell





Treatment

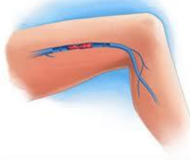
1. NSAI or SAARDs for Arthritis
2. Low dose Corticosteroids for moderate disease activity
3. Methyl prednisolone Pulse therapy may be used for +++ acute exacerbations



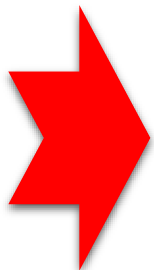
4. Intermittent low dose Cyclophosphamide may preserve Renal Functions



5. IV Cyclophosphamide may be life saving in Lupus Cerebri (A life threatening Emergency characterized by +++ Delirium)



6. Anticoagulants [Warfarin] for the thrombotic tendency & Plasmapharesis plus ISDs for Coagulopathy



Avoid ppt factors e.g. UVRs, Drugs, Stress, Estrogen.

Rheumatology

Gout



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Definition

Gout is a chronic metabolic condition characterized by deposition of Uric Acid crystals in Joints and tissues.



Aetiology

1ry

Idiopathic (Most common)

2ry

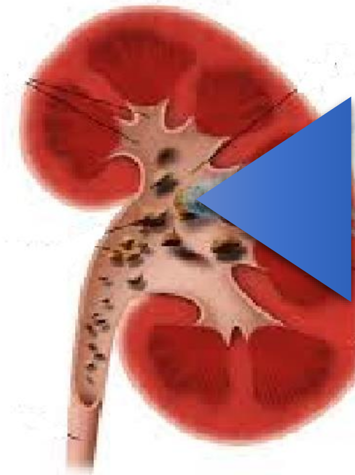
❶ Myeloproloferative disorders (MPD)
❷ Renal Failure (rare)
❸ Chronic acidotic conditions
Alcohol-Keto acids in DKA- Lactic acidosis- Salicylate toxicity

Mechanism

Joints

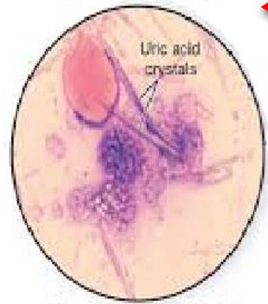


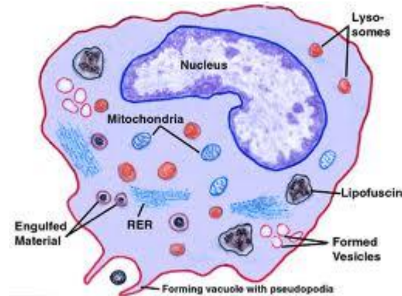
Kidney



1- Stones
1- CTIN
3- Renal Damage

Pathogenesis





Release of inflammatory mediators e.g. IL1, PG, TNF

Acute Arthritis

Chronic damage of tissues especially to Elastic Fibers

Clinical Picture

Acute gout

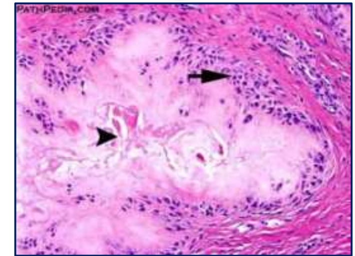


1. Mostly in Peripheral Joints
2. +++ tissue damage and acute inflammation….Low grade fever
3. May be a single attack or Recurrent

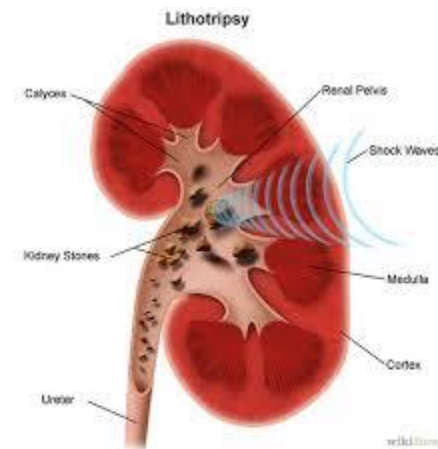
Chronic gout



Tophi



Ear Pinna



Special Investigations

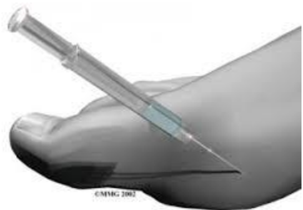
↑ Uric Acid Level

More than 7.5 mg/dl in 95% of cases.

↑ ESR

Leukocytosis

Joint Aspiration





Negative birefringent Needle Like Crystals

X Ray



Treatment (1)

Acute Attack

❶ Colchicine



❶ It inhibits the micro tubular functions as it binds to tubulin thus decreases the ability of leukocytes to engulf the Uric Acid crystals. This decreases the release of inflammatory mediators.
❷ 0.6 mg every hour until Improvement- Start of GIT side effects- or 10 doses without relief
❸ ?! IV but CI in BM⬇ - RF- LCF- Sepsis

❷ NSAI

Indomethacin

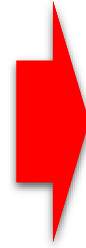
❸ IA Steroids

If the above failed

Treatment (2)

Chronic Gout

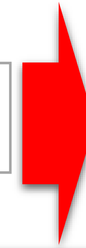
1 If UA excretion is low



Use Uricosuric drugs such as Probenecid or/ Sulfinpyrazone

Note: You must do the following- Increase fluid intake- Alkalization of Urine- Good KFT- No history of Renal Stones

2 If UA excretion is high



Use XO Inhibitors such as Allopurinol

Note: Allopurinol can increase the toxicity of Cytotoxic drugs especially Azathioprine.

Treatment (3)

Precipitating factors

Avoid ppt factors for acute attacks

Trauma to the joint



- **A** Alcohol
- **B** Purine intake
- **C** Stress
- **D** Diuretics
- **E** Infection



Sudden decrease in Uric Acid level by UA Lowering drugs

Rheumatology

Osteoarthritis



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Definition

A chronic and degenerative form of arthropathies

Aetiology

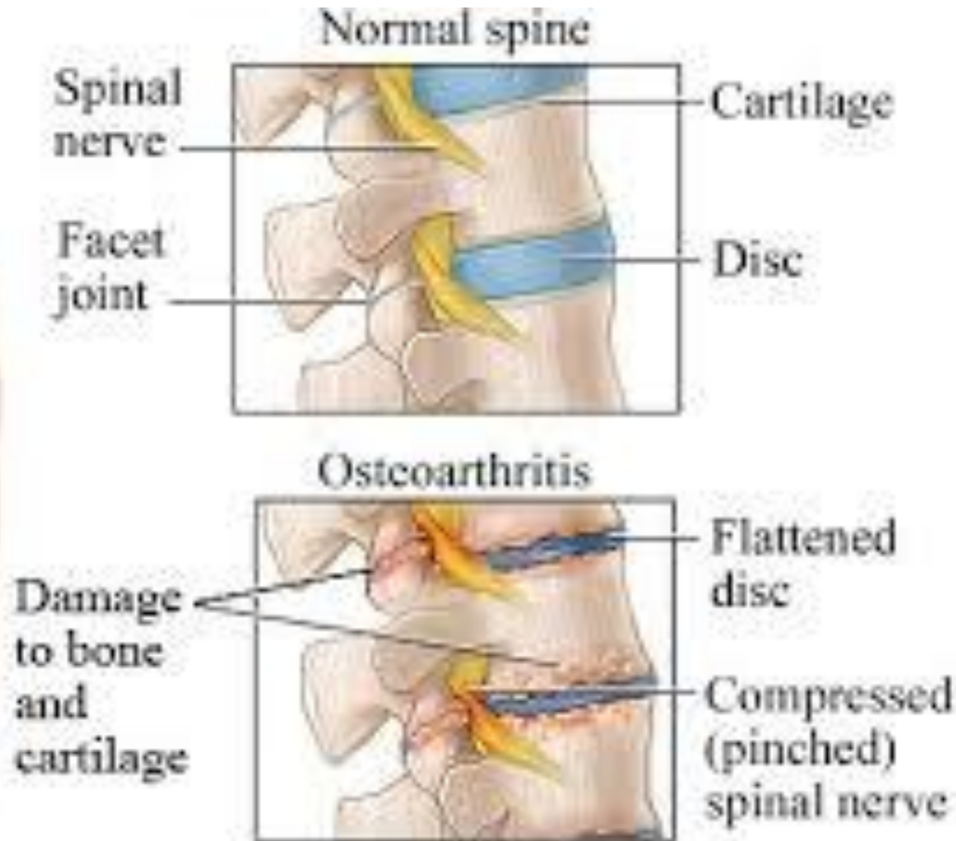
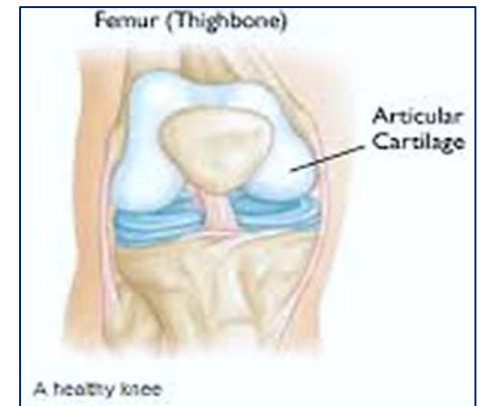
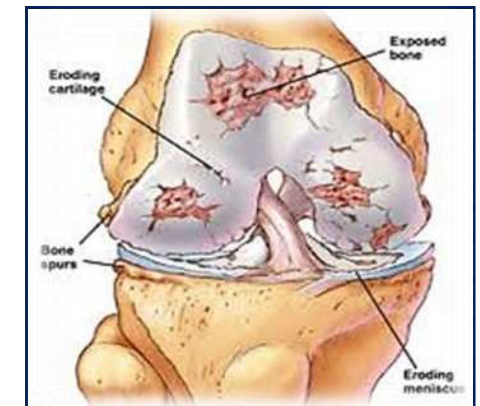
❶ Idiopathic in 80% of the cases (?! Aging)
❷ Extra stress on joints (Deformities-Obesity- Excessive use of joints e.g hands in typists- Shoulder in basketball players)
❸ Diseases affecting the cartilage such as hemochromatosis

1 

2 

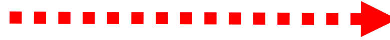
3 

Pathology



Normal spine
Spinal nerve
Cartilage
Facet joint
Disc
Osteoarthritis
Damage to bone and cartilage
Flattened disc
Compressed (pinched) spinal nerve

Femur (Thighbone)
Articular Cartilage
A healthy knee

Eroding cartilage
Exposed bone
Bone spurs
Eroding meniscus

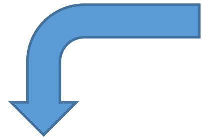
Clinical Picture





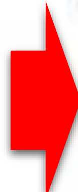


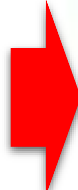


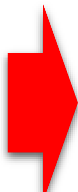


Pain

❶ Deep aching
❷ Increase by joint use
❸ Decrease by rest
❹ Associated with "crepitus"
❺ May cause muscle atrophy



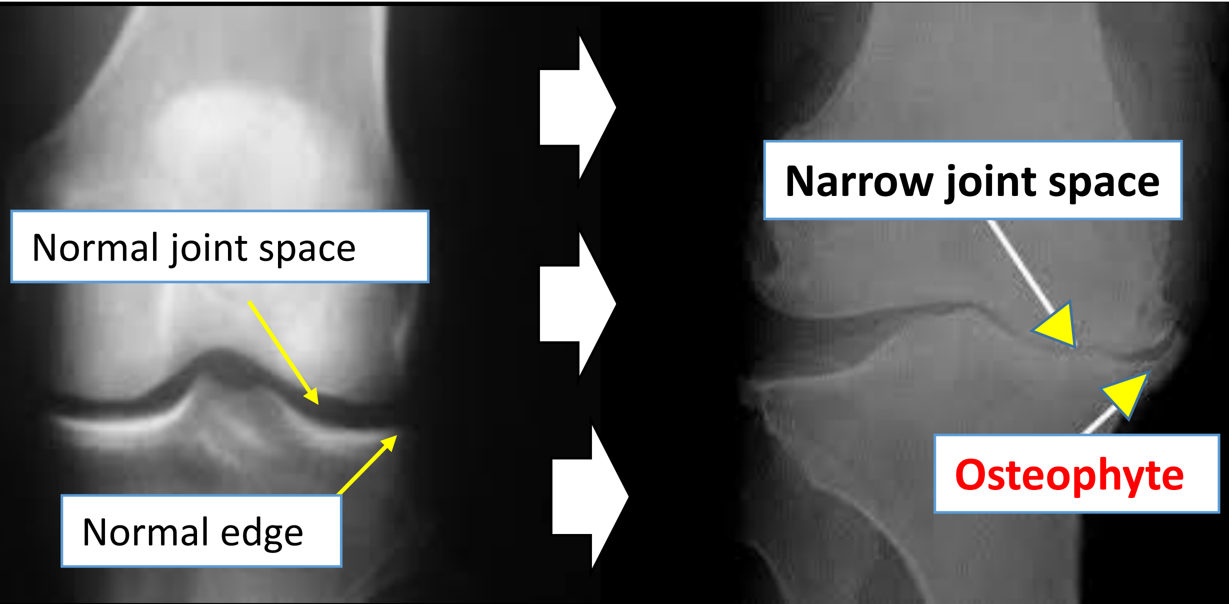






Special Investigations

① Decreased joint space
② Osteophyte formation



Treatment

1- **Acetaminophen**
2- **NSAI OR Selective COX-2 Inhibitors**
3- **Glucosamine SO_4**
4- **Topical Capsaicin**
5- **Intra Articular Steroids (ONLY once every 6 months to AVOID more degeneration)**

Rheumatology

PAN



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Definition

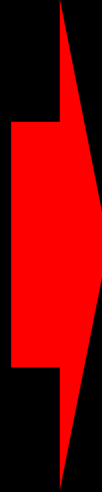
An inflammatory process affecting arteries (especially medium sized arteries) and causes Multisystem disease affection.

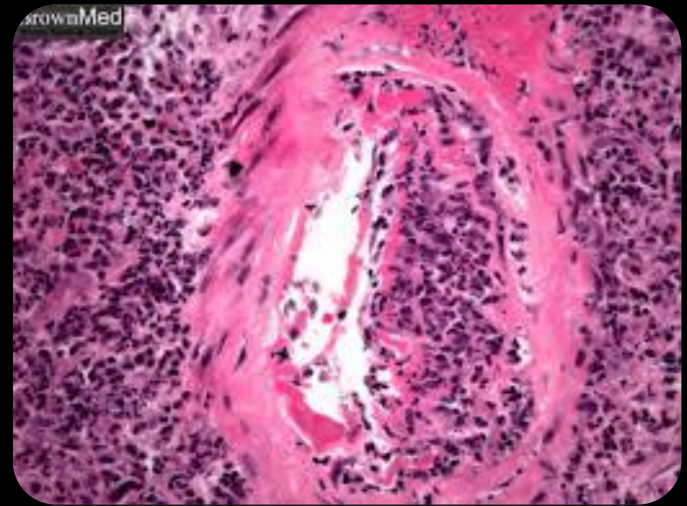
Aetiology

Unknown ?!
Hypersensitivity toward certain agents have been postulated e.g.
Drugs such Sulpha or Penicillin or/ Infections such as HBV.

Pathology







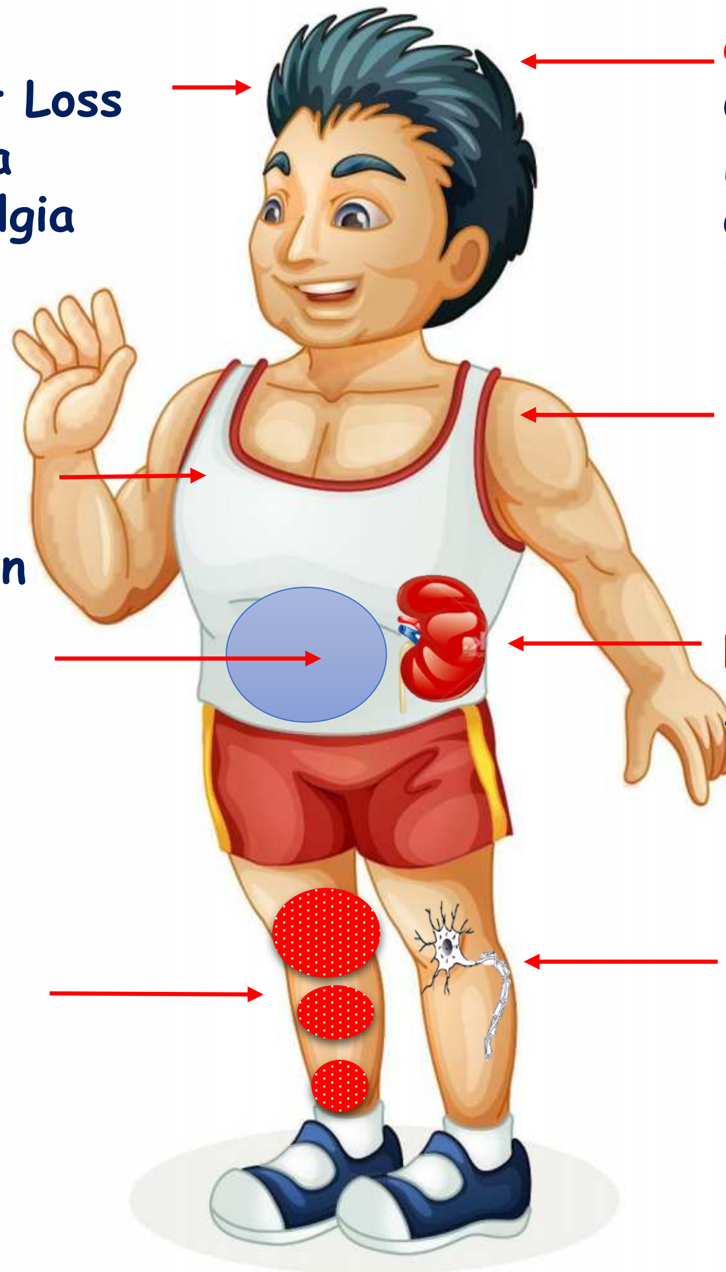
Clinical Picture

Fever
Weight Loss
Myalgia
Arthralgia

CNS:
Organic psychosis
Hemiparesis
Cranial nerve affection
Brain stem lesions

Chest Manifestations:
Bronchial Asthma
Pulmonary hypertension

Cardiac Manifestations:
AMI- Acute
Pericarditis-
+++Hypertension



Renal Manifestations:
AGN

GIT Manifestations:
Abdominal pain
Steatorrhea (MAS)
LFT….+++SAP

Skin Manifestations:
Rash
Purpura
Nodules

Peripheral nerves:
Mononeuropathy
Multiplex

Special Investigations

p- ANCAs

Perinuclear antineutrophil cytoplasmic antibodies





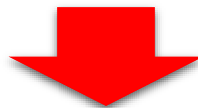
p-ANCA

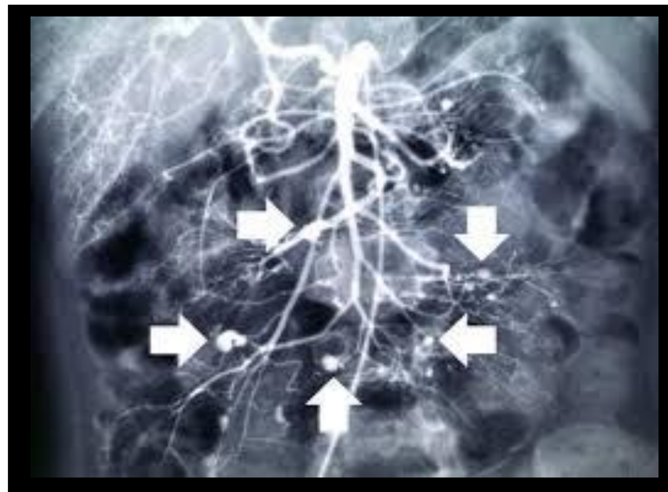


c-ANCA

Mesenteric angiography

Abnormalities in the blood vessels





↑ ESR

Serological tests

Against HBV, HCV are +ve in 20-30% of cases.

Skin Biopsy



Treatment

Corticosteroids *plus* Cyclophosphamide

Rheumatology

Polymyalgia Rheumatica



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Definition

A chronic painful condition characterized by

1. Proximal Limb girdle pain
2. Morning stiffness
3. Constitutional Symptoms
4. ↑↑↑ ESR

Aetiology

?! Immune

Clinical Picture

Females
> Males



Old age More than 60

❶ Marked pain and Stiffness (Less than ½ hours) in the Morning…….(Depression- Anorexia- Weight Loss)
❷ Typically occur in Shoulder and pelvic girdle
❸ Muscle Strength is NORMAL (# Myositis)
❹Evidence of inflammatory reaction e.g. +++ESR NN Anemia
❺ [liver] in 25%…Mild hepatic dysfunction…↑SAP

The condition is highly associated with Giant Cell arteritis

Mainly clinical diagnosis

Treatment

Corticosteroids are the main lines of therapy e.g. Prednisolone 5 mg/day.

Rheumatology

Polymyositis



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Definition

An inflammatory type of myopathies that typically causes bilateral and Symmetrical Muscle Weakness.

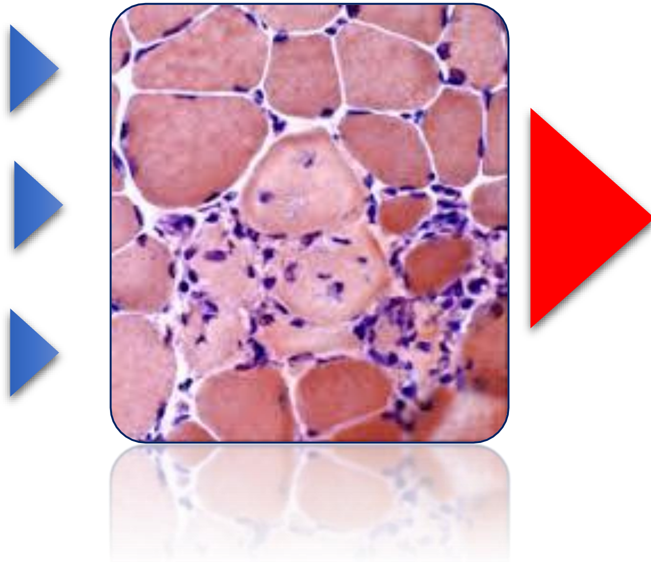
Aetiology

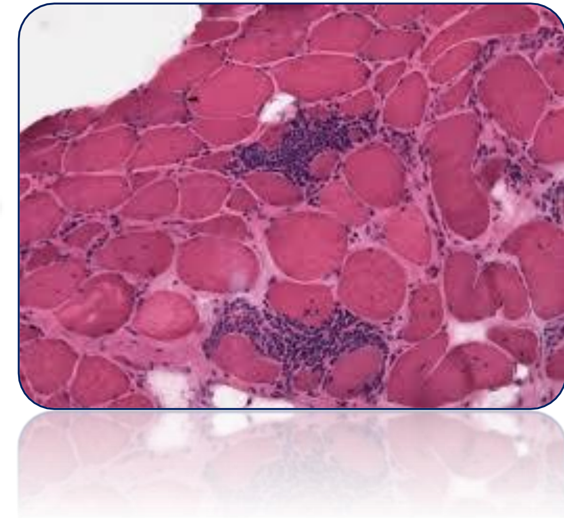
Unknown ?!

May be genetic –Immune- Viral

Pathology

Inflammatory cells completely surrounding the muscle fibers - Interstitial inflammation





Clinical Picture

3 Periorbital Oedema

5 Weight Loss + Fever

2 Characteristic Rash "Dermatomyositis" Purplish-Dusky on Eye Lids-Cheeks- and Light exposed areas and Extensor surface of knees and elbows.





4 Raynaud's phenomenon In 30 % of the cases

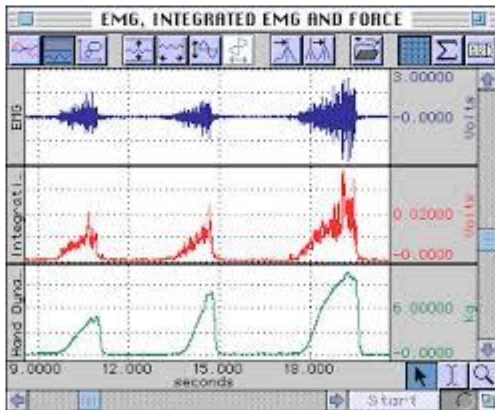
1 Severe Muscle weakness with Oedema over the affected Muscles.

Bilateral & Symmetrical Muscle Weakness

Special Investigations

1 EMG

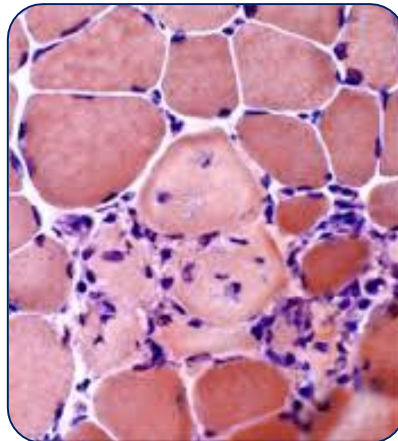
to differentiate it from other muscle diseases



1 Muscle Biopsy

Lymphocytic infiltration

Later on: Fibrosis



1 Muscle Enzymes



CPK

LDH

Aldolase

Treatment

❶ Corticosteroids (1st line of therapy)

❷ IV Immunoglobulins can be helpful to ttt associated dysphagia

❸ Cytotoxic drugs (if other measure failed)

Treatment

Type I: Adult type
Type II: Dermatomyositis
Type III: associated with Malignancy
Type VI: Childhood type
Type V: associated with collagen diseases



Always put the possibility of Underlying Malignancy

Rheumatology

Scleroderma



تحذير هام

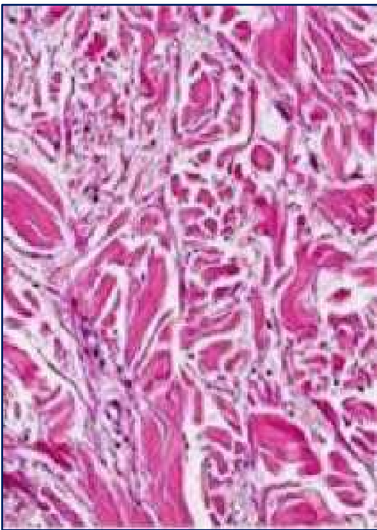
هذا الفيديو و جميع الرسوم التوضيحية المتاحة فى هذا الموقع هم تحت حماية قانون الملكية الفكرية

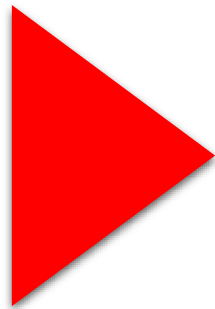
هذا الفيديو و جميع الرسوم التوضيحية المتاحة فى هذا الموقع هم تحت حماية قانون الملكية الفكرية و لا يحق لأحد إستخدامه أو تحميله أو إستنساخه أو إعادة طبعه أو طبع أجزاء منه بدون إذن مسبق من الدكتور طارق عبد الحميد (أو من ينوب عنه قانونياً). و من يتعدى على الملكية الفكرية المذكورة فسوف يتعرض للمسائلة القضائية عن جريمة إنتهاك حقوق الملكية الفكرية. و إستخدام الفيديوهات و المادة العلمية المذكورة مكفول فقط لمشترى واحد فقط و لأخذ تصريح إستخدام لأكثر من شخص برجاء الإتصال بالدكتور طارق عبد الحميد

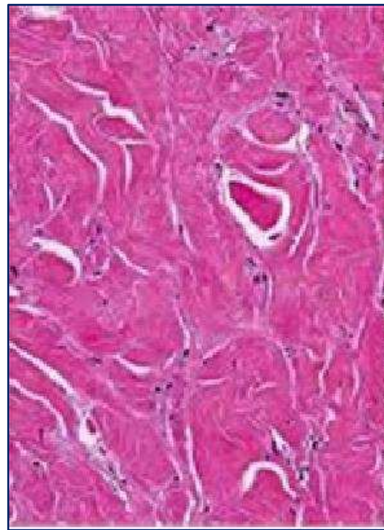
tarekabdelhamid2000@gmail.com

Definition

Abnormal collagen deposition and vascular changes involving mainly the skin and viscera







Aetiology

Both immune mediated cell damage And Non-immune mediated endothelia cell injury are involved in its pathogenesis.

Clinical Picture

Dysphagia

Alopecia

Pinched immobile face: Characteristic

Initially: Painless symmetrical swelling of both hands



Raynaud's phenomenon in 90% of the cases

Myocardial fibrosis

Fibrosis of the lung

Kidney fibrosis which may cause CRF and ↑ BP

MAS

Myalgia

Special Investigations

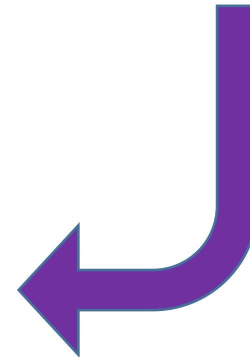
Antinuclear Antibodies are nearly always present.

Scl-70 Antibodies in 1/3 of the cases.

It is directed against topoisomerase III

Skin Biopsy

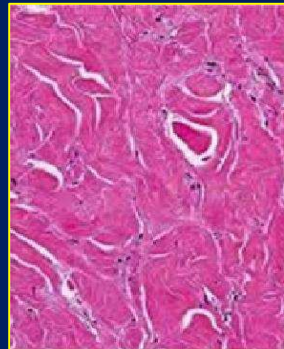




Normal



Scleroderma



Treatment

No ttt is Available however the following lines of therapy could be helpful:

1- ttt of Raynaud's phenomenon of Ca channel blockers –supportive measures- Sympathectomy
2- ttt of hypertension by ACE-I to protect the Kidneys.
3- ttt of Interstitial pulmonary fibrosis IPF by Cyclophosphamide
4- ttt od Oesophageal Reflux by Anti-Reflux measures (See GIT)
5- ttt of Skin lesions by D-Penicillamine as it decreases Collagen production

Rheumatology

Giant cell ateritis



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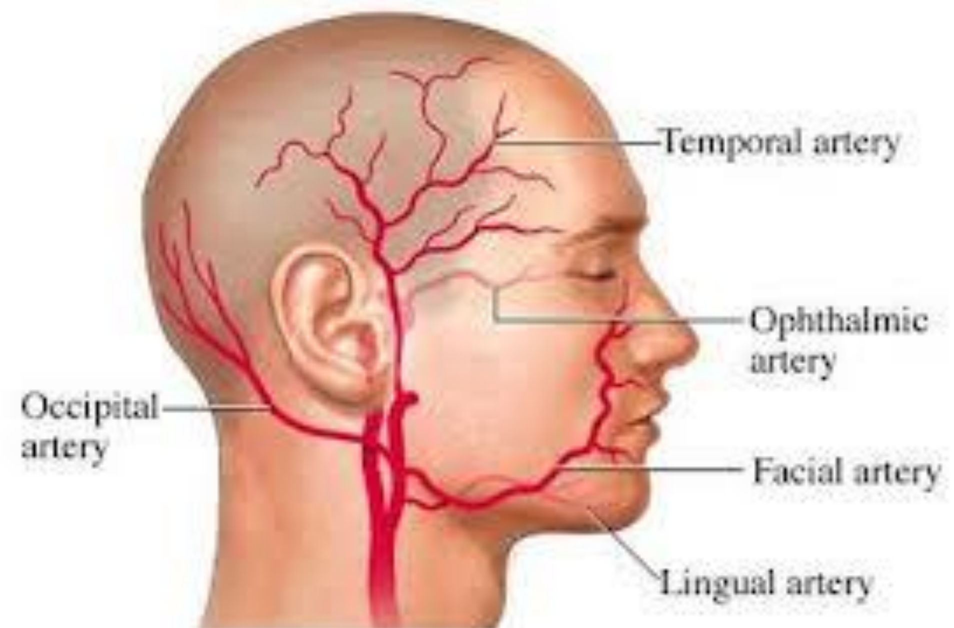
تحذير هام

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Definition

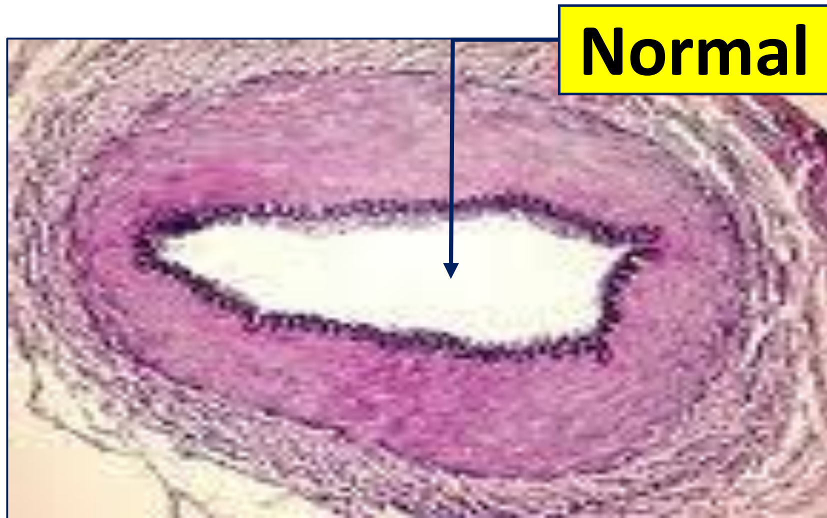
A severe granulomatous inflammatory disorder affecting medium sized arteries especially the temporal artery.



Aetiology

Unknown…?! Immune

Pathology



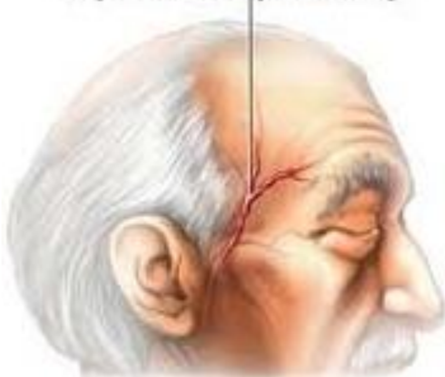


Pathology


Normal


GCA

❶ Severe granulomatous inflammation



1- Severe headache
2- Throbbing pain
3- Tenderness
4- Swelling and Tenderness in Overlying skin

❷ Ischemia

Jaw Claudication

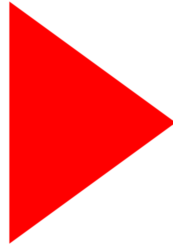
Blindness

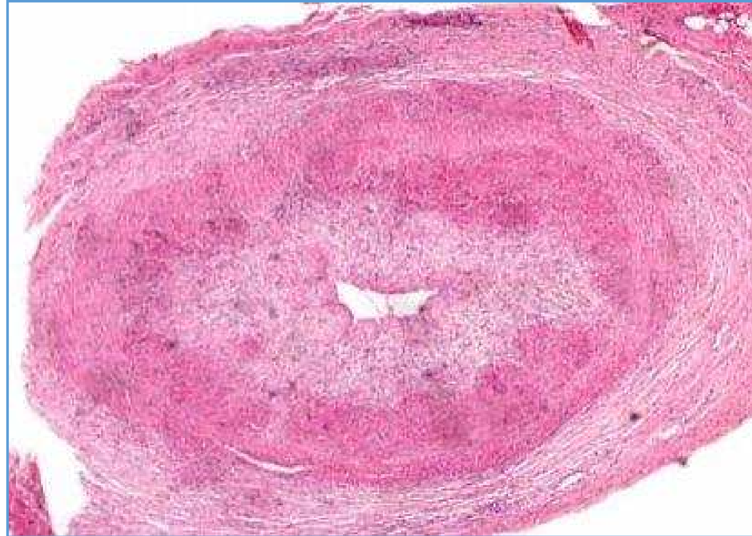
Special Investigations



ESR

Temporal Artery Biopsy





Treatment

Corticosteroids



The main lines of therapy
They should be given **early** in the disease to prevent blindness



Rheumatology

Ankylosing Spondylitis



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تحذير هام

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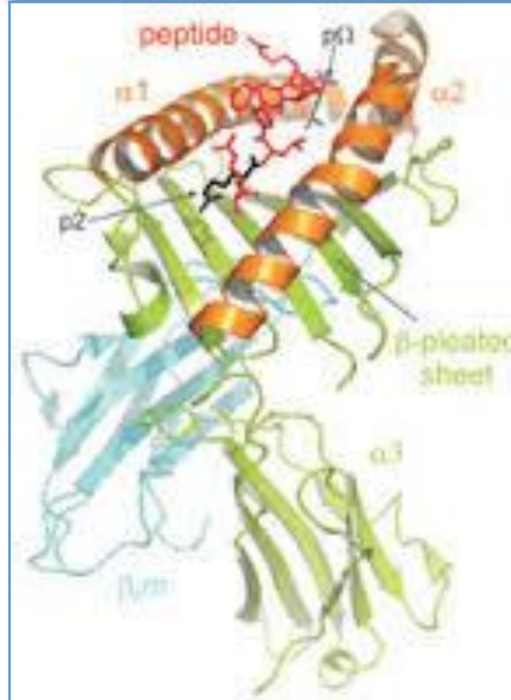
Definition

An inflammatory condition of the Spine affecting mainly the Sacroiliac joints. Other joints may be affected and Extra articular affection may occur.

Aetiology

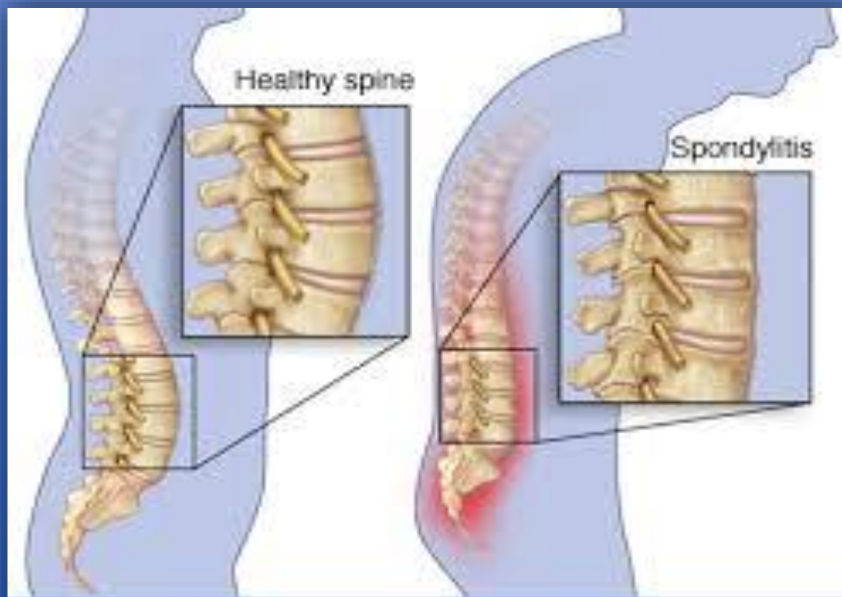
Familial

?! HLA-B27

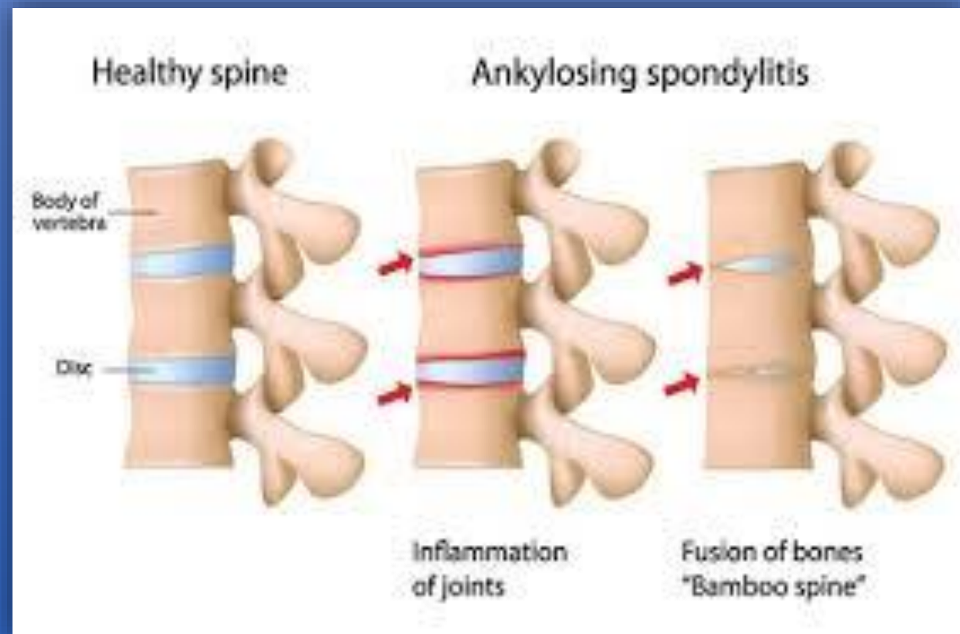


?! Infective

Pathology



Healthy spine
Spondylitis
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Healthy spine
Ankylosing spondylitis
Body of vertebra
Disc
Inflammation of joints
Fusion of bones "Bamboo spine"

Clinical Picture

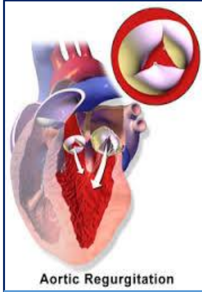




Apical lung fibrosis



Iritis



AR

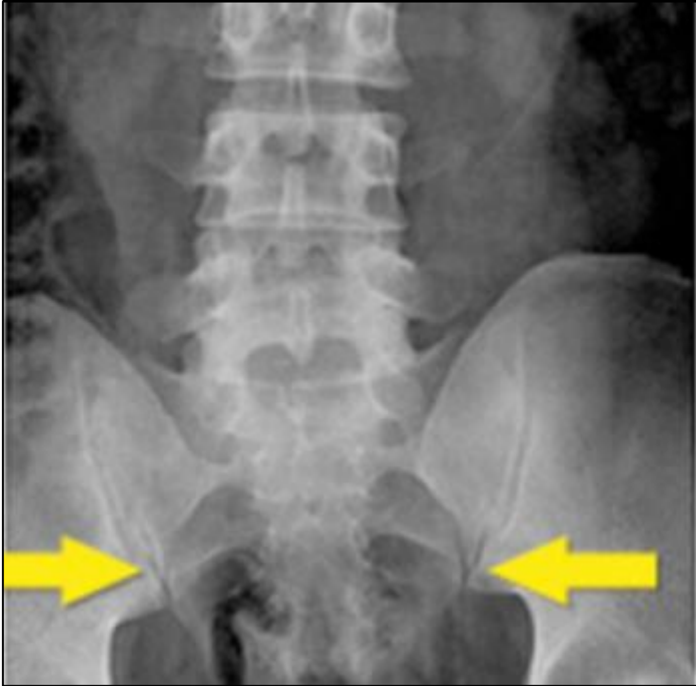


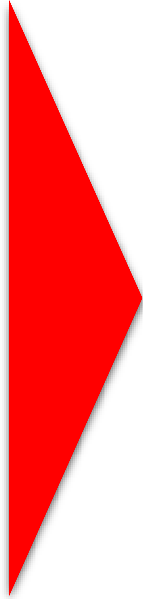


1. Low back pain with bilateral sciatic radiation down to the knees.
2. Morning stiffness that may improve with activity
3. Loss of normal lumber lordosis
4. Limited Chest expansion…..Apical fibrosis & cavitation of the lung
5. Extra articular manifestations: Iritis- AR- Apical lung fibrosis

Special Investigations (1)

Normal

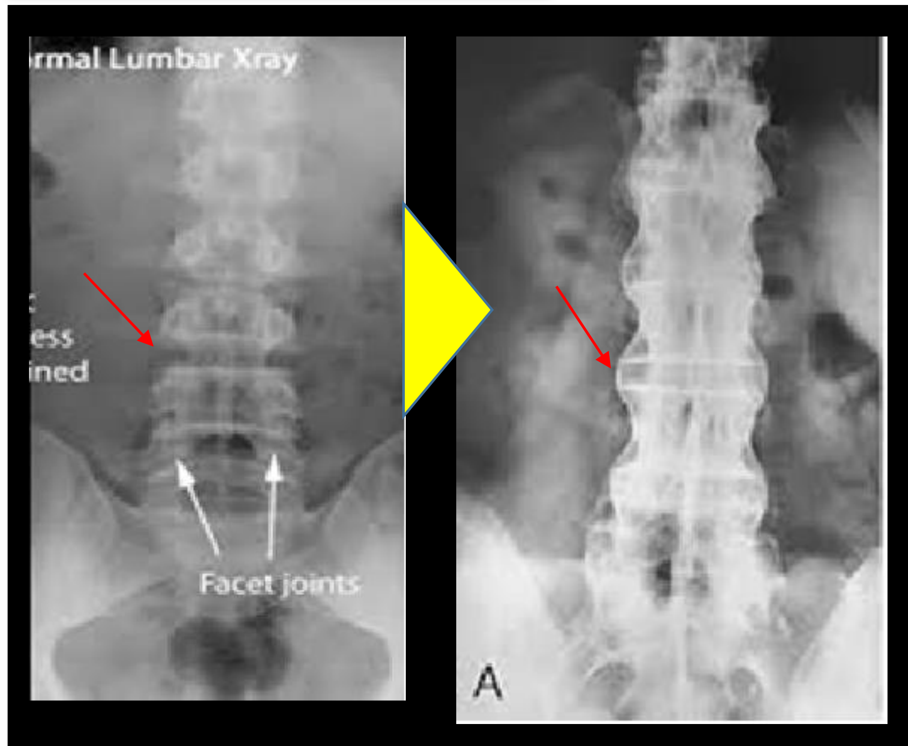


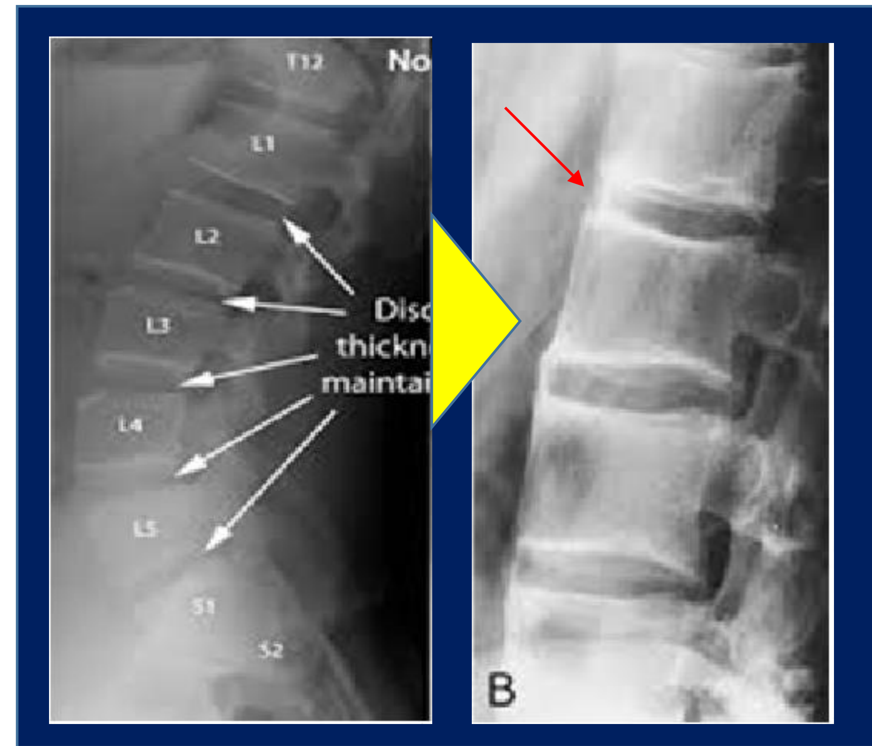


Sacroillitis



Special Investigations (2)





1 Square shaped vertebrae
2 Spondylophytes (lipping of vertebral bodies)
3 Bamboo spine
4 Erosions-Fusion of Ankylosed vertebrae

Treatment

❶ Indomethacin 25 mg TDS……. ▶ 50 mg TDS

❷ If failed you can use Phenylbutazone or other NSAI

❸ Exercise and physiotherapy



Rheumatology

Investigations in Rheumatology



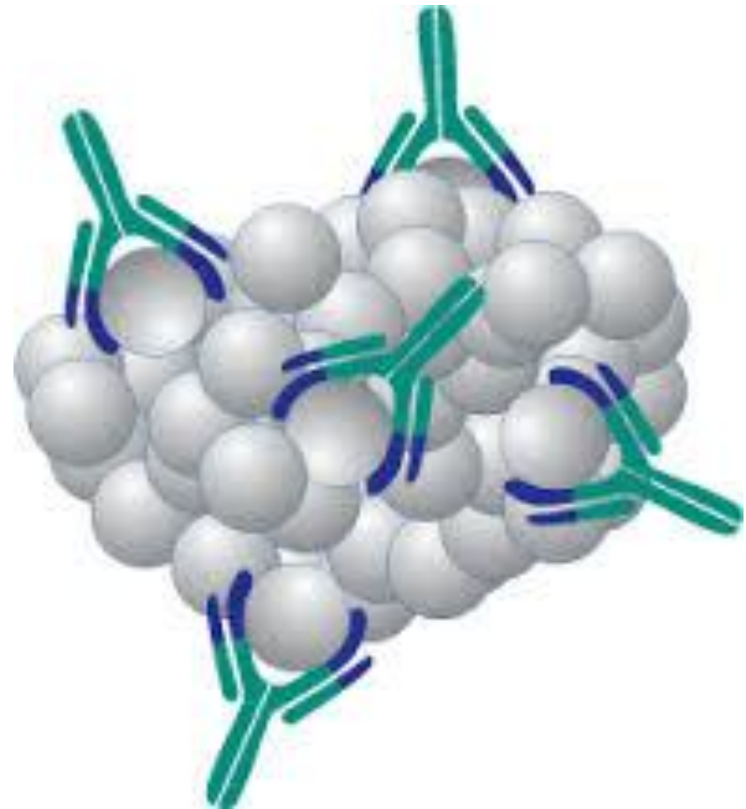
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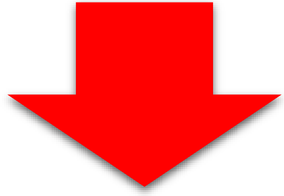
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Auto antibodies



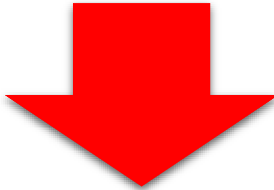


Anti n DNA



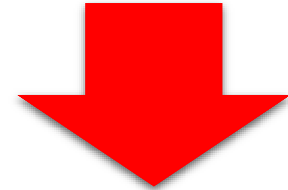
SLE (Sensitive)

Anti Sm



SLE (Specific)

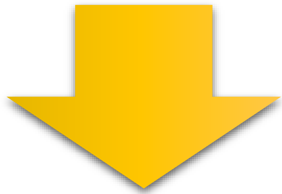
Anti histone antibodies



Drug Induced lupus

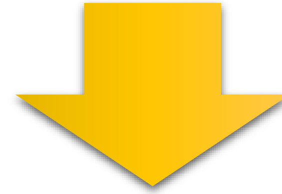
Anti RNP	Anti Scl-70	Anti centromere
		
Overlap Syndrome (SLE + Scleroderma + Polymyositis)	Scleroderma	CREST Syndrome [Calcinosis -Reynold's phenomenon- Oesophageal dysmotility- syndactyly- Telangiectasia]

Anti SS-A
Anti ss-B



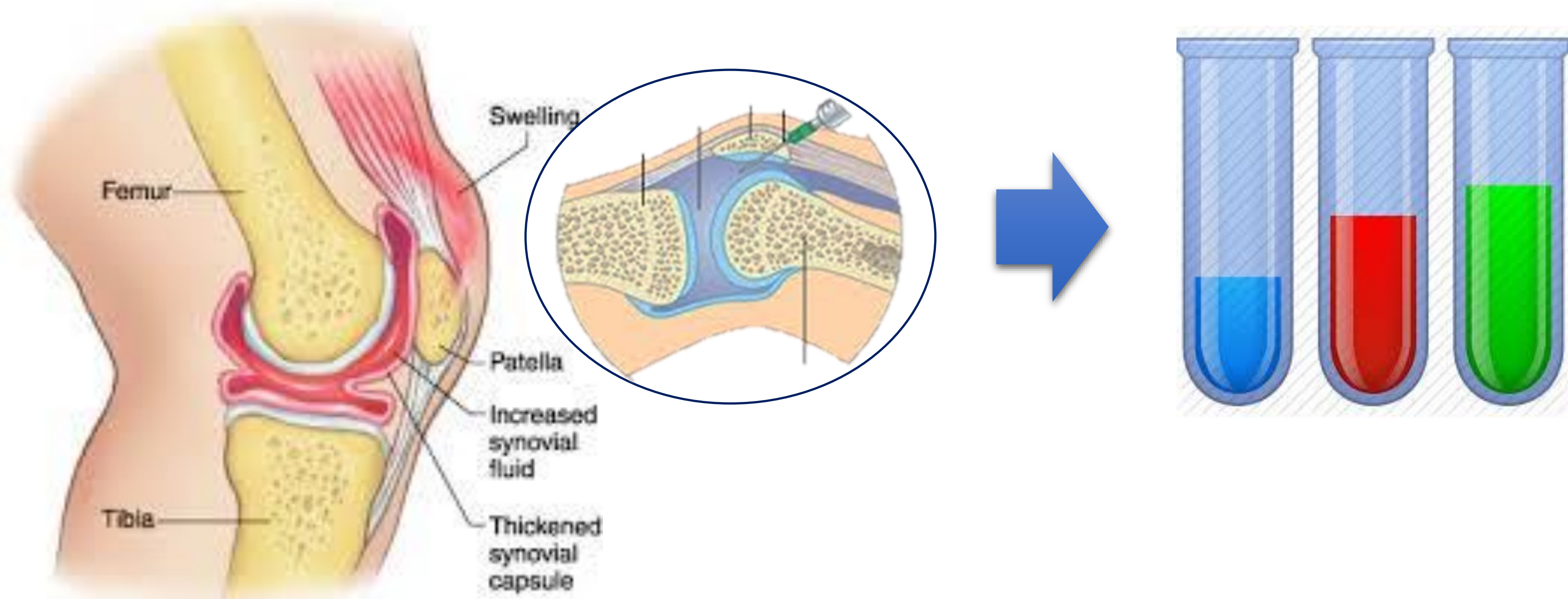
Sjogran Syndrome
(*Sicca Syndrome*)
Dry secretions due to affection of Exocrine glands: Salivary- lacrimal- Vaginal

Anti neutrophil cytoplasmic Ab's



2 types
P ANCAs: PAN
c ANCAs: Wegner granulomatosis
(granulomatous infiltration of nose- lung- and kidney)

Joint fluid aspiration



Normal

❶ Transparent
❷ Clear
❸ High viscosity due to high hyaluronic acid content
❹ WBCs/mm cubic less than 200
❺ PMN < 25%
❻ Glucose (percentage of blood level) nearly 100%
[Facilitated diffusion]

Inflammatory arthritis

❶ Examples: Collagen diseases- TB- Viral Fungal- Crystal induced arthropathies such as gout and pseudo gout (calcium pyrophosphate dihydrate crystals CPPD)
❷ Low viscosity
❸ High total WBCs and high PMNs more than 50%
❹ Low Glucose



Rheumatoid Arthritis



Gout

Non- Inflammatory arthritis

❶ Examples: Osteoarthritis (OA) and Rheumatic fever
❷ Nearly NORMAL synovial fluid with mild increase in WBCs.

Septic

1. Caused by bacterial infections
2. Opaque yellow pus
3. +++++ WBCs and more than 75% PMNs
4. VERY Low Glucose due to increased utilization by bacteria

Hemorrhagic

❶ Caused by Trauma- Tumors - Coagulopathies

❷ +++++ RBCs

